

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior listings and versions of claims in the application.

CLAIMS:

1. (currently amended) A filled and polymerizable dental material, ~~characterized in that wherein~~ it contains:
 - a) an organic binder,
 - b) a nanoscale filler comprising nanoparticles, said nanoscale filler having which has the following features:
 - at least 50% by weight, ~~preferably at least 60% by weight and particularly preferably at least 80% by weight~~ of the nanoparticles have a particle diameter of less than 200 nm, ~~preferably less than 150 nm, particularly preferably less than 100 nm,~~
 - at least 20 particle number%, ~~preferably at least 30 particle number%, preferably at least 40 particle number% and particularly preferably at least 50 particle number%,~~ of the nanoparticles are aggregated particles,
 - the nanoscale filler is organically surface-modified,
 - c) at least one inorganic and/or organic filler selected from the group consisting of a ground filler having a mean particle size between 0.2 μm and 50 μm and a spherical filler having a mean particle size between 0.1 μm and 50 μm .

2. (currently amended) The dental material as claimed in claim 1, characterized in that wherein it contains 1 to 99% by weight, preferably 5 to 90% by weight and particularly preferably 10 to 80% by weight, of organic binder a).
3. (currently amended) The dental material as claimed in claim 1 or 2, characterized in that wherein it contains 0.1 to 90% by weight, preferably 1 to 80% by weight and particularly preferably 10 to 60% by weight, of nanoscale filler b).
4. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 3~~ or 2, characterized in that wherein it contains 0.1 to 95% by weight, preferably 1 to 90% by weight and particularly preferably 10 to 80% by weight, of inorganic and/or organic filler c).
5. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 4~~ or 2, characterized in that wherein it additionally contains pyrogenic and/or wet-precipitated silicic acids for adjustment of the viscosity.
6. (currently amended) The dental material as claimed in claim 5, characterized in that wherein it contains 0 to 30% by weight, preferably 0 to 20% by weight and particularly preferably 0 to 10% by weight of the pyrogenic and/or wet-precipitated silicic acids for adjustment of the viscosity.
7. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 6~~ or 2, characterized in that wherein the organic binder a) is a compound or a mixture of a number of compounds which contains free-radical polymerizable and/or cationically and/or anionically polymerizable groups and/or groups which allow curing by means of a condensation, addition and/or acid-base reaction.
8. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 7~~ or 2, characterized in that wherein the nanoscale filler b) is a metal, semimetal or mixed metal oxide, silicate, nitride, sulfate, titanate, zirconate, stannate, tungstate or a mixture of these compounds.

9. (currently amended) The dental material as claimed in claim 8, ~~characterized in that wherein~~ the nanoscale filler b) is silicon dioxide.
10. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 9 or 2,~~ characterized in that wherein the filler c) is a spherical filler, quartz powder, glass powder, glass ceramic powder or a mixture of these powders.
11. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 9 or 2,~~ characterized in that wherein the inorganic and/or organic filler c) is a filled or unfilled chip polymer and/or bead polymer.
12. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 11 or 2,~~ characterized in that wherein the inorganic and/or organic filler c) is surface-modified and has functional groups on its surface which can react chemically with the organic binder a) or have a high affinity for the organic binder a).
13. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 12 or 2,~~ characterized in that wherein it the dental material additionally contains an initiator or a number of initiators and the dental material optionally contains a cointiator or a number of cointiators.
14. (currently amended) The dental material as claimed in ~~one of claims claim 1 to 13 or 2,~~ characterized in that wherein it is X-ray opaque.
15. (currently amended) The use of the dental material as claimed in ~~one of claims claim 1 to 14 or 2,~~ comprising the steps of:
 - a) making available of a dental material manufactured in a process according to claim 16, and as
 - b) processing said dental material of step a) for prosthetic, preservative and preventive dentistry, such as, for example, as a tooth filling material, stump buildup material, material for temporary crowns and bridges, dental cement, adhesive, material for artificial teeth, veneer material, sealing material and dental lacquer.

16. (currently amended) A process for the production of dental materials, having the steps:
- a) making available of:
 - a1) an organic binder,
 - a2) an at least partially ~~agglomerated and/or aggregated or~~ substantially agglomerated nanoscale filler,
 - a3) an agent for the organic surface modification of the filler a2),
 - a4) at least one inorganic and/or organic filler selected from the group consisting of a ground filler having a mean particle size between 0.2 μm and 50 μm and a spherical filler having a mean particle size between 0.1 μm and 50 μm ;
 - b) carrying out an organic surface modification of the filler a2) using the agent a3);
 - c) incorporation of the surface-modified nanoscale filler into the organic binder until at least 50% by weight, ~~preferably at least 60% by weight, further preferably at least 80% by weight,~~ of the nanoscale filler has a particle diameter of less than 200 nm, ~~preferably less than 150 nm, particularly preferably less than 100 nm;~~
 - d) incorporation of the filler a4) into the organic binder;
- wherein the steps c) and d) can be carried out in any desired sequence or simultaneously and where step b) is carried out before or simultaneously to the steps c) and/or d).

17. (currently amended) The process as claimed in claim 16, ~~characterized in that~~ wherein the organic surface modification of the nanoscale fillers a2) is carried out directly in the organic binder.
18. (currently amended) The process as claimed in claim 16 or 17, ~~characterized in that wherein~~ in step b) additional mechanical energy is introduced, ~~preferably by means of a high-speed stirrer, a dissolver, a bead mill or a mixer.~~
19. (currently amended) The process as claimed in ~~one of claims claim~~ claim 16 to 18 or 17, ~~characterized in that wherein~~ the organic binder a1) is a compound or a mixture of a number of compounds which contains free radical-polymerizable and/or cationically and/or anionically polymerizable groups and/or groups which allow curing by means of a condensation, addition and/or acid-base reaction.
20. (currently amended) The process as claimed in ~~one of claims claim~~ claim 16 to 19 or 17, ~~characterized in that wherein~~ the nanoscale filler a2) is a metal, semimetal or mixed metal oxide, silicate, nitride, sulfate, titanate, zirconate, stannate, tungstate or a mixture of these compounds.
21. (original) The process as claimed in claim 20, characterized in that the nanoscale filler a2) is silicon dioxide.
22. (currently amended) The process as claimed in ~~one of claims claim~~ claim 16 to 21 or 17, ~~characterized in that wherein~~ in the organic surface modification groups are introduced onto the surface of the nanoscale fillers a2) which can react chemically with the organic binder a1) or have a high affinity for the organic binder.
23. (currently amended) The process as claimed in ~~one of claims claim~~ claim 16 to 22 or 17, ~~characterized in that wherein~~ the agent employed for the organic surface modification is a silane, chlorosilane, silazane, titanate, zirconate and/or tungstate.
24. (currently amended) The process as claimed in ~~one of claims claim~~ claim 16 to 23 or 17, ~~characterized in that wherein~~ the inorganic and/or organic filler a4) is a spherical

filler, quartz powder, glass powder, glass ceramic powder or a mixture of these powders.

25. (currently amended) The process as claimed in ~~one of claims~~ claim 16 to 23 ~~or 17~~, ~~characterized in that~~ wherein the inorganic and/or organic filler a4) is a filled or unfilled chip polymer and/or bead polymer.
26. (currently amended) The process as claimed in ~~one of claims~~ claim 16 to 25 ~~or 17~~, ~~characterized in that~~ wherein the inorganic and/or organic filler a4) is organically surface-modified and thus has functional groups on its surface which can react chemically with the organic binder a1) or have a high affinity for the organic binder.